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मानक

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“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 8271-3-4 (1982): Quartz Crystal Units Used for Frequency Control and Selection, Part 3: Series BC for Oscillators, Section 4: Quartz Crystal Unit Type BC-04 [LITD 5: Semiconductor and Other Electronic Components and Devices]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard



SPECIFICATION FOR
QUARTZ CRYSTAL UNITS USED FOR FREQUENCY
CONTROL AND SELECTION

PART III SERIES BC FOR OSCILLATORS

Section 4 Quartz Crystal Unit Type BC-04

- 0. General** — This standard shall be read in conjunction with IS : 8271 (Part I)-1981 ' Specification for quartz crystal units used for frequency control and selection: Part I General requirements and tests (first revision) '.
- 1. Outline and Dimensions** — Holder outline shall conform to Type BC (see Sheet No. 5 of IS : 4570-1968 Specification for crystal holders).
- 2. Marking** — See 8 of IS : 8271 (Part I)-1981.
- 3. Construction and Workmanship** — See 7 of IS : 8271 (Part I)-1981.
- 4. Test Schedule and Detail Requirements**
- 4.1 General Conditions for Test** — See 9.2 of IS : 8271 (Part I)-1981.
- 4.2 Test Schedule** — The sequence and grouping of type, routine and acceptance tests shall be as per 9.1 of IS : 8271 (Part I)-1981.
- 4.3 Detail Requirements** — The detail requirements applicable to this particular type of crystal unit shall be as specified in Table 1.

TABLE 1 DETAIL REQUIREMENTS OF QUARTZ CRYSTAL UNIT TYPE BC-04

Sl No.	Characteristic	Requirement
(1)	(2)	(3)
i)	Type of holder	BC (See 1)
ii)	Frequency range	5 to 20 MHz
iii)	Frequency tolerance:	
	a) Over operating temperature: range	± 25 ppm
iv)	Resonance resistance	See Table 2
v)	Mode of oscillation	Fundamental
vi)	Load capacitance	30 ± 0.5 pF
vii)	Capacitance shunt	7 pF Max
viii)	Operating temperature range	−20°C to +70°C
ix)	Test set, calibration values and rated drive level	See Table 3
x)	Shock [as per 9.15 (Severity A) of IS : 8271 (Part I) - 1981]:	
	a) Frequency change permitted	± 5 ppm
	b) Resonance resistance change permitted	± 10 percent

(Continued)

TABLE 1 DETAIL REQUIREMENTS OF QUARTZ CRYSTAL UNIT TYPE BC-04 — Contd

SI No.	Characteristic	Requirement
(1)	(2)	(3)
xi)	Vibration [as per 9.16.1 (Severity A) of IS : 8271 (Part I)-1981]:	
	a) Frequency change permitted	± 5 ppm
	b) Resonance resistance change permitted	± 10 percent
xii)	Temperature cycling:	
	a) Frequency change permitted	± 5 ppm
	b) Resonance resistance change permitted	± 10 percent
xiii)	Temperature run:	
	a) Frequency change permitted	± 5 ppm
	b) Resonance resistance change permitted	± 10 percent
xiv)	Ageing Frequency change permitted	5 ppm

TABLE 2 RESONANCE RESISTANCE

[Table 1, Item (iv)]

Frequency Range MHz	Maximum Resonance Resistance Ohms
(1)	(2)
From 5 to 6	75
Over 6 to 7	50
Over 7 to 10	30
Over 10 to 20	25

TABLE 3 TEST SET, CALIBRATION VALUES AND RATED DRIVE LEVEL

[Table 1, Item (ix)]

SI No.	Frequency Range MHz	Calibration Values			Rated Drive Level mW
		Resistance Ohms	Crystal Current mA	Resistor Voltage Drop V	
(1)	(2)	(3)	(4)	(5)	(6)
i)	From 5 to 7.5	25	14	—	5.0 ± 1.0
ii)	Over 7.5 to 10	16	18	—	
iii)	Over 10 to 15	13	20	—	
iv)	Over 15 to 20	12	—	0.24	

For SI No. (i) to (iii) — Test Set TS-330/TSM.
For SI No. (iv) — Test Set TS-683/TSM.